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(54) **BASKET SYSTEM FOR WORK OF OPERATORS ON SHIPPING CONTAINERS ON SHIPS**

(57) The system of baskets is designed to allow operators to easily and safely hook and unhook cargo container on ships and in port, including three baskets (1, 1', 1''), connected to each other in a manner that baskets (1) and (1') can be folded with respect to the top basket (1''), and where the top basket is attached to the top frame (2) and in turn, the frame is attached to the crane by means of the spreader using container hooks (3). The device incorporates solar panels (5) for electrical power and the bottom basket (1) is accessed through a door (18), while travel between baskets is accomplished using trap doors (20) with automatic closing and locking devices.

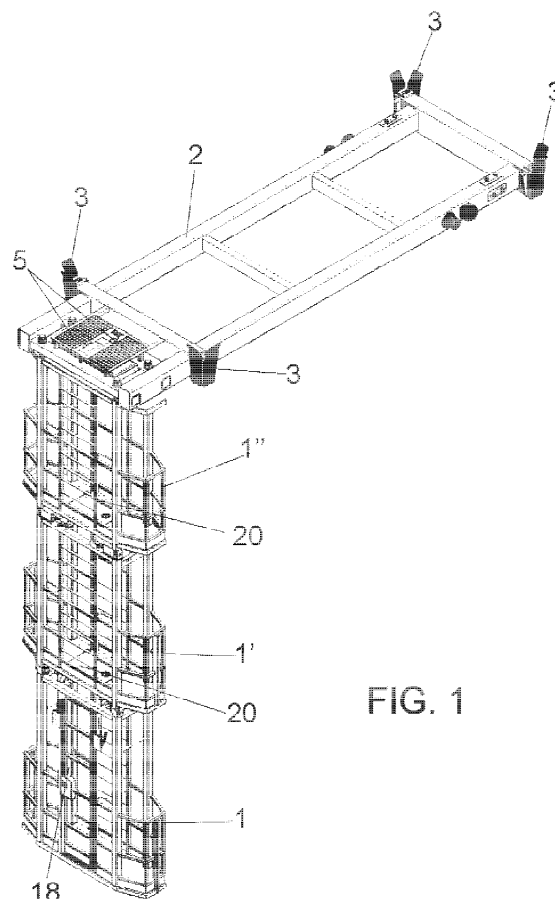


FIG. 1

## Description

### OBJECT OF THE INVENTION

[0001] This invention relates to a system of baskets used for facilitating working at the height of the dockers when lashing and unlashng shipping containers on board ships and more specifically to a system of baskets designed for increasing the safety of the dockers and facilitate access to the hooking and locking devices on the containers themselves and therefore improving, facilitating and expediting the task of loading and unloading containers on board ships.

[0002] The basket as a whole may be operated individually, sweeping one side of the containers or may be operated in tandem, in which case both sides of the containers would be swept.

### BACKGROUND OF THE INVENTION

[0003] The shipping containers are kept secured together forming a block on the ship using twistlocks, which ensure the containers are keep secured during transport, loading and unloading. The containers are handled using a frame or top cargo structure called a Spreader, which is capable of "holding and releasing" the containers automatically by means of latches.

[0004] In a similar manner, the spreader can "hold or release" the basket described in this invention, which holds the dockers in charge of hooking / unhooking, locking / unlocking the twistlocks that secure the containers prior to being unloaded.

[0005] Regarding the basket system, we are not aware of the existence of basket assemblies like the ones described in this document; in fact, the systems that are currently available are not very reliable or safe.

### DESCRIPTION OF THE INVENTION

[0006] The system of baskets that is recommended is comprised of three baskets used for carrying operators and which are connected together, where the top basket is attached and secured to a horizontal structure using hooking and locking devices and. in turn, this horizontal structure is attached to the frame or spreader, and where the bottom part of the top basket is hinged to the middle basket, which allows positioning the middle and lower baskets folded on a transport platform.

[0007] With both lower baskets in the folded position, it is worth mentioning that the top basket is kept in a vertical position and secured to the horizontal structure, which in turn is secured to the top spreader so that when it is hoisted by a crane, the two bottom baskets are moved to their vertical position, resulting in the three baskets forming a vertical column; also, the baskets are hooked and locked together to ensure this vertical working position is maintained.

[0008] Access to the baskets, as long as they are po-

sitioned vertically, is carried out through a door that is located on the bottom basket; and travel from one basket to another is carried out using the trap doors that are located at the base of each basket.

[0009] In addition to wheels, the transport platform incorporates shoring to keep the basket assembly at rest and stable; it also incorporates folding ladders used for accessing the working areas of the different baskets.

[0010] When the baskets are arranged in tandem, foldable ladders will also be available for accessing the middle or central turret, including a working area with ladders and back plates used for accessing the hooks and locks on the top Spreader.

[0011] Solar panels are included, which are used for charging the batteries that provide power to the different electrical components of the system such as lights, aural devices, etc.

[0012] Regarding the door used for accessing the baskets and the trap doors used for travelling between baskets, it is worth mentioning that these doors incorporate automatic closing and locking devices.

[0013] The locking of the baskets in the vertical position is carried out using a manual lever in conjunction with a locking latch that is actuated by said lever.

[0014] Each basket incorporates a control panel with push-buttons for starting, stopping and disconnecting. The status of all three baskets can be monitored from the control panel that is located in the top cab, while the control panels in the middle and lower baskets only monitor the status of their respective cabs.

[0015] Additionally, the control panel in each cab incorporates an emergency push-button as well as a push-button for turning individual lighting devices on/off.

[0016] Finally, the baskets are equipped with indicator lights and acoustic signals used for informing the driver of the main crane regarding the operating status of the baskets at all times.

[0017] These and other features will be described throughout this description by referencing a set of drawings that are provided below.

### DESCRIPTION OF THE DRAWINGS

[0018] To complement the description that is subsequently going to be carried out and for the purpose of better understanding the characteristics of the invention; in accordance with a preferred example for carrying it out in a practical way, a set of drawings are provided along with the description, which represent the following in an illustrative but not a limiting fashion:

Figure 1 - Shows a perspective view of the system of baskets used for operators to work over shipping containers on board ships, where the top basket is attached to the top horizontal structure; all in accordance with the scope of this invention.

Figure 2 - Shows a view similar to the previous figure

but with the middle and bottom baskets folded.

Figure 3 Shows a perspective view of a tandem formed by two baskets like the ones shown in figure 2; all of it mounted on a rolling transport platform.

Figures 4 and 5 - Show views corresponding to perspective details of the devices or mechanisms used for keeping the column comprised of the three baskets represented in figure 1 in a vertical position.

Figure 6 - Shows a detailed view of the closing and locking devices for the lower door used for accessing the baskets.

Figure 7 - Shows a perspective view of the trap door used for travelling between the two baskets.

Figure 8 - Shows a view of the basket with its corresponding control panel used for operating the cabs.

Figure 9 - Shows a detailed view of the closing and locking devices for the door used for accessing the bottom basket.

Figure 10 - Shows a detailed view of the wall winch used for folding and unfolding the ladders that are used for attaching the safety hooks to the Spreader.

Figure 11 - Shows a detailed perspective view of a top section of the assembly where the solar panels used for powering the system are installed as well as the safety chains that attach the safety basket to the extensible structure or spreader.

## PREFERRED EMBODIMENT OF THE INVENTION

[0019] As can be seen in the referenced figures, the system of baskets of the invention is comprised of three baskets; a bottom basket (1), a middle basket (1') and a top basket (1''), in a manner that as a set, they form a vertical column when they are extended as shown in figure 1; and are attached to an upper frame or horizontal structure (2) using hooking (3) devices connected to a container spreader.

[0020] The assembly represented in figures 1 and 2 is handled using a crane hanging from the Spreader by means of the attachment hooks (3).

[0021] The baskets assembly may form an individual assembly or may work in tandem as shown in figure 3, so in any case the structure (2) incorporates safety chains (4) attached to the container loading and unloading device or Spreader. It is mandatory for the safety chains to be manually operated at the start of the operations. These chains represent a second safety measure and supplement the main safety device.

[0022] The baskets (1-1'-1'') are equipped with indicator light as well as acoustic signals to inform the crane

driver of the operating status at all times as well as internal lamps that are used to facilitate the work of operators during conditions of poor visibility, in a manner that the entire electrical system is energized by a pair of batteries, which are charged by the solar panels (5) that are installed on the top horizontal structure.

[0023] The assembly is transported by a rolling cargo platform (6) with shores (7) used for statically positioning the platform when it is moved using a port towing vehicle and the wheels (28).

[0024] The baskets (1-1'-1'') must be stowed folded over the cargo rolling platform (6). The baskets must be properly fastened to each other and they shall never be left on the floor or extended.

[0025] Regardless of whether or not the baskets are used individually or in tandem, they must be secured on the one hand to the container Spreader using the locking and hooking devices (3) and on the other hand using the safety chains (4) that are manually attached to said spreader.

[0026] Evidently, via the working area (9), access may be achieved through the ladders (13) for the purpose of actuating the safety chains after the operator has been safely secured using a harness attached to the assembly's structure.

[0027] After the baskets (1-1'-1'') have been positioned vertically forming a column, the baskets are then secured in said position by actuating the lever (15) shown in figure 4, which is connected to a spring (17), and where the latter tends to keep the latch (16) closed, in a manner that it can be opened by simply pulling on the lever (15).

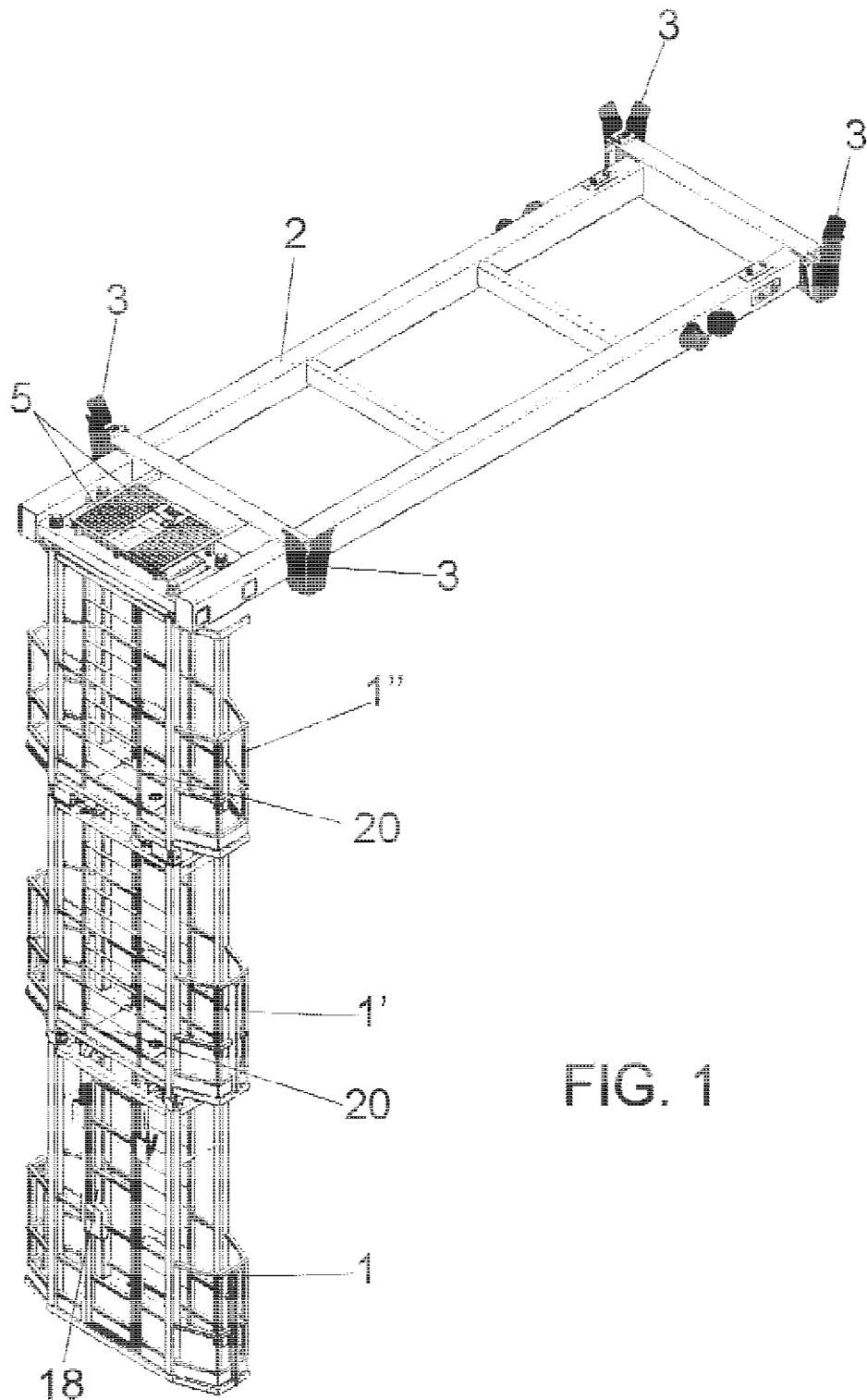
[0028] Regarding figures 6 and 7, it is worth mentioning that the baskets are accessed through the door (18) that is located on the bottom basket (1), with the automatic closing and locking mechanism (19), while travel between baskets (1-1'-1'') is accomplished through the hinged trap doors (20) that are located on the floor of each basket.

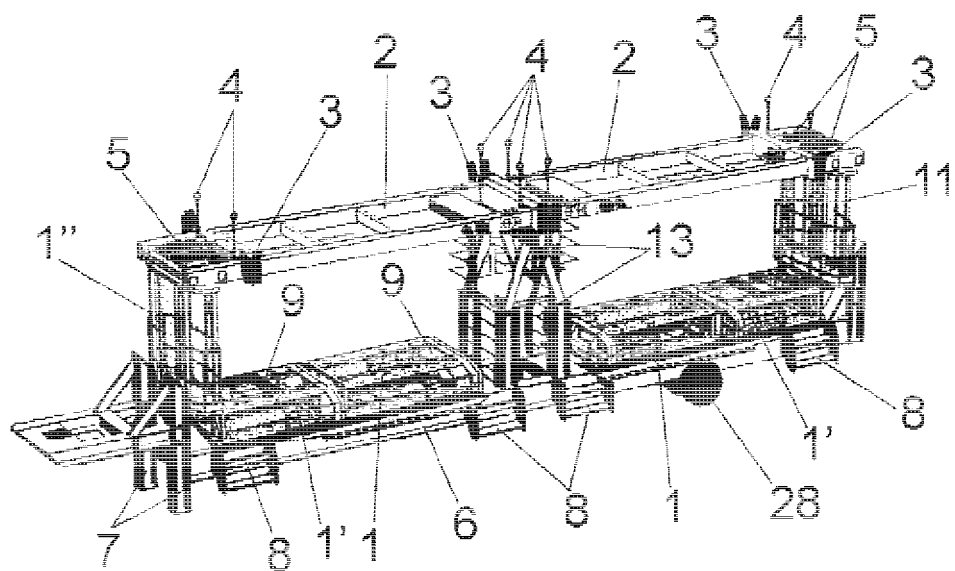
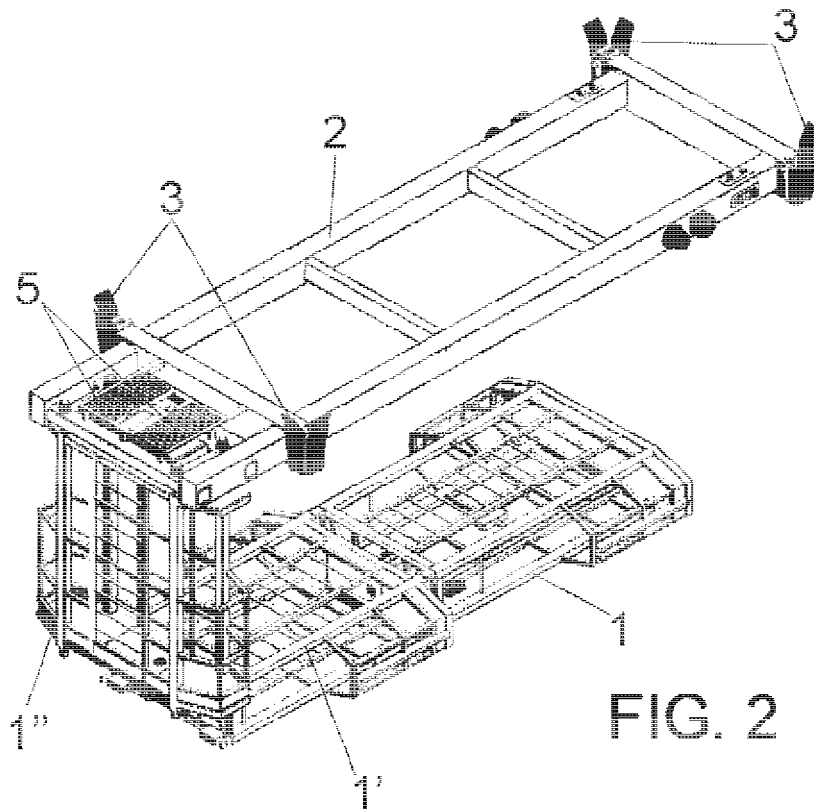
[0029] Also worth mentioning is that the top section of the cab will incorporate hooking points for the harnesses of the workers or operators, along with a control panel (21) with start and stop buttons as well as connect and disconnect buttons, an emergency button, etc.

## Claims

1. <sup>st.</sup>- System of baskets for operators to carry out work over shipping containers on board ships, designed to be attached at the top to a shipping container frame or structure that is used on ships and in port areas and commonly referred to as Spreaders; this system is designed to be mounted over a transport platform that moves on wheels; and it is **characterized in that** it includes three baskets (1,1',1'') used for operators to carry out their work; these baskets are connected to each other at different heights, where the top basket (1'') is attached and secured

- to the top frame (2) using suitable locking devices, while the bottom of said top basket (1") is hinged to the middle basket (1'), which allows positioning said middle basket (1') and the bottom basket (1) folded over the corresponding rolling transport platform (6); with the particularity that the baskets incorporate a bottom access door (18) used for accessing the bottom basket (1) and trap doors (20) used for travelling between the middle basket (1') and the top basket (1") and located on the floors of said baskets; locking devices have been included between baskets in the extended and vertical positions on the columns; with the particularity of including solar panels (5) at the top used for charging the batteries that supply electrical power for operating the lighting as well as the system's electrical components.
- 2.<sup>nd</sup>.- System of baskets for operators to carry out work over shipping containers on board ships, in accordance with claim 1, **characterized in that** the lower access door (18) incorporates automatic closing and locking devices, including trap doors (20) and the appropriate hooking and blocking devices.
- 3.<sup>rd</sup>.- System of baskets for operators to carry out work over shipping containers on board ships, in accordance with the aforementioned claims and **characterized in that** the locking of the baskets (1,1',1") in the extended and vertical position is carried out by means of a manually actuated lever (15) in combination with a locking latch (16) connected to a spring (17).
- 4.<sup>th</sup>.- System of baskets for operators to carry out work over shipping containers on board ships, in accordance with the aforementioned claims and **characterized in that** the inside of each basket (1,1',1") incorporates a control panel (21) with start, stop and disconnect push-buttons, and where the control panel in the top basket (1") includes the means for informing about the status of the three cabs, while the control panels in the middle and bottom baskets include the means for informing about the status of said cabs.
- 5.<sup>th</sup>.- System of baskets for operators to carry out work over shipping containers on board ships, in accordance with claim 4, **characterized in that** the control panel (21) of each cab includes an on/off button for the lighting devices as well as an emergency button.
- 6.<sup>th</sup>.- System of baskets for operators to carry out work over shipping containers on board ships, in accordance with the aforementioned claims, **characterized in that** the baskets assembly (1,1',1") may be operated individually or in tandem with another similar assembly.
- 7.<sup>th</sup>.- System of baskets for operators to carry out work over shipping containers on board ships, in accordance with the aforementioned claims, **characterized in that** the baskets (1,1',1") are equipped with indicator lights as well as acoustic signals to inform the crane driver of the operating status at all times





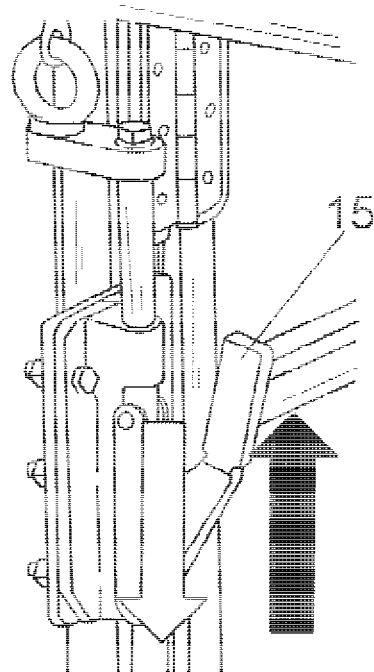


FIG. 4

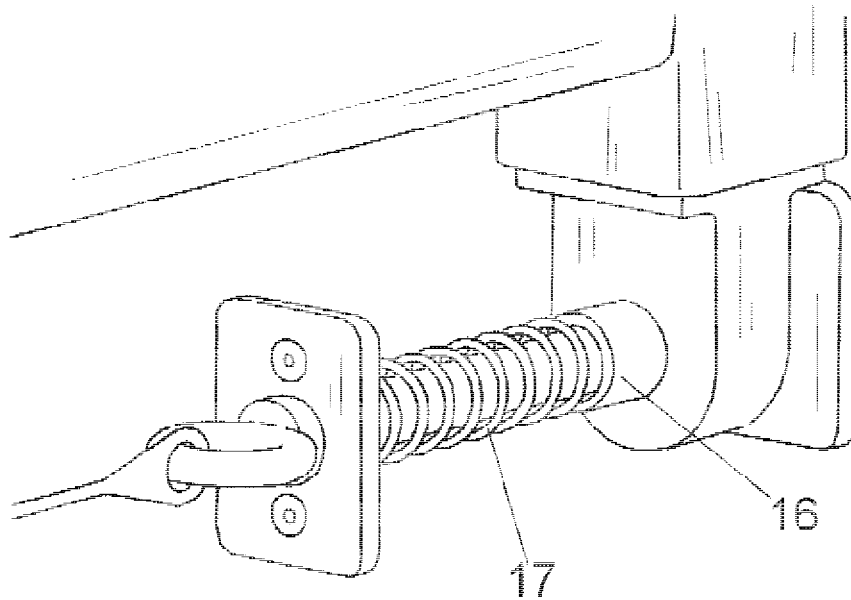


FIG. 5

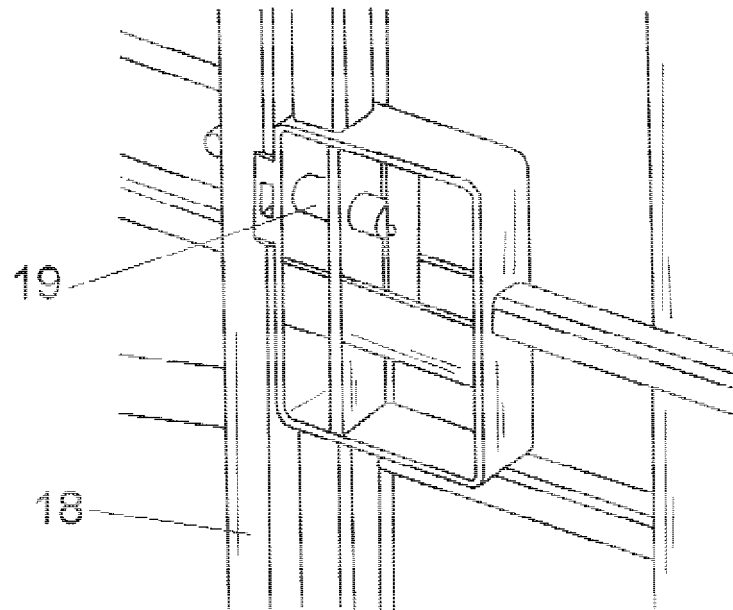


FIG. 6

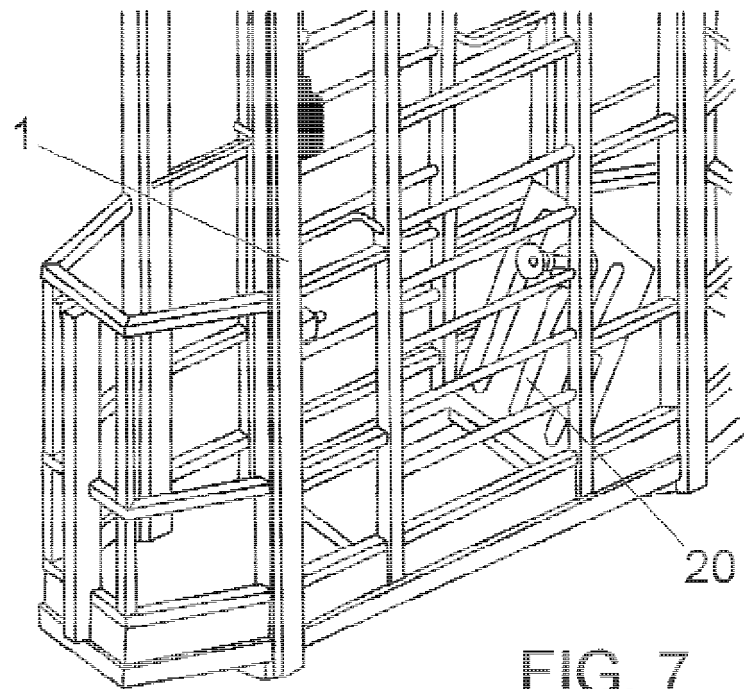


FIG. 7



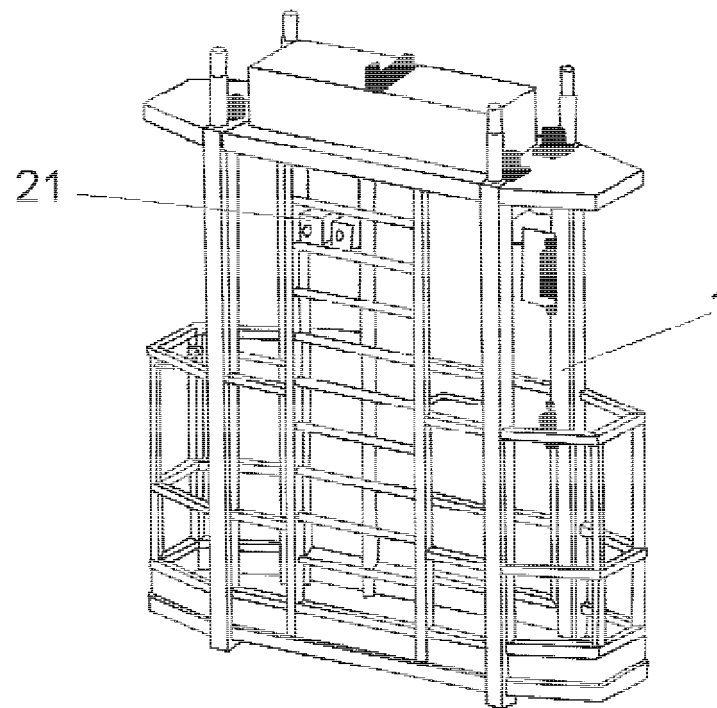


FIG. 8

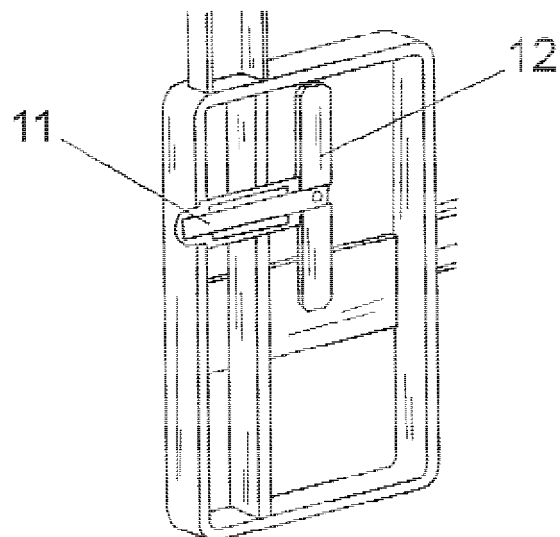


FIG. 9

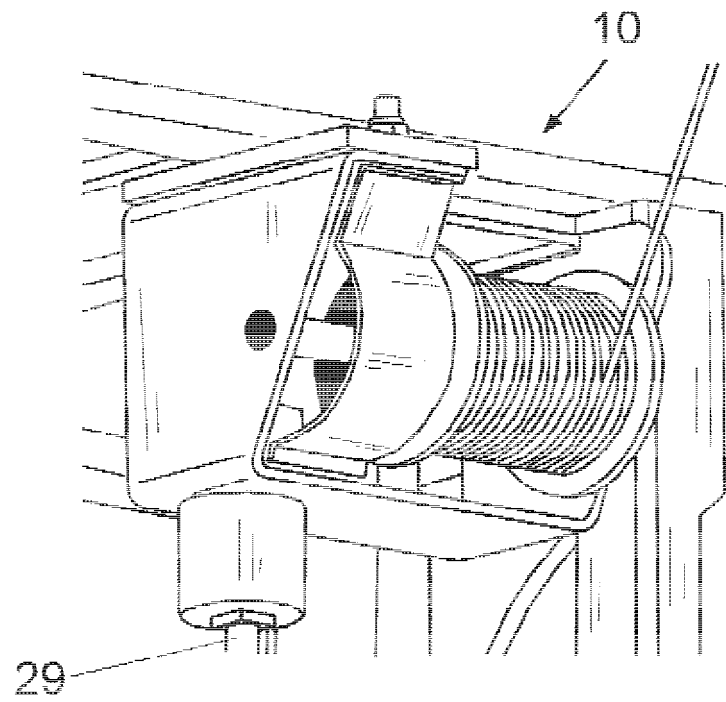


FIG. 10

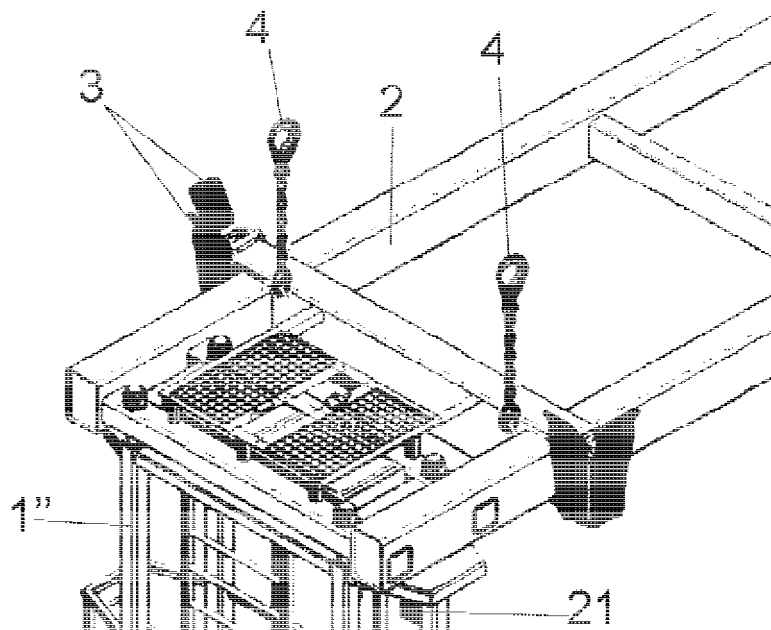


FIG. 11

## INTERNATIONAL SEARCH REPORT

International application No.  
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|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| 5  | A. CLASSIFICATION OF SUBJECT MATTER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
|    | <b>B66F11/04</b> (2006.01)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
|    | According to International Patent Classification (IPC) or to both national classification and IPC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
|    | B. FIELDS SEARCHED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
| 10 | Minimum documentation searched (classification system followed by classification symbols)<br><b>B66F, B66C</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
|    | Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
| 15 | Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)<br><b>EPODOC, INVENES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
|    | C. DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
| 20 | Category*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Relevant to claim No.                                                          |
| 25 | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 20/10/2014, "TELESCOPIC CAGE GONDOLA TYPE" (LASHING CAGES) Recovered from internet by the 21/03/2016 in the address:<br><a href="http://www.lashingcages.com/in/telescopic-cage-gondola">www.lashingcages.com/in/telescopic-cage-gondola</a>                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1-7                                                                            |
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| 35 | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 23/10/2014, "SAFETY CAGES UNDER SPREADER" (LASHING CAGES) Recovered from internet by the 28/03/2016 in the address:<br><a href="http://www.lashingcages.com/downloads/Safety-Cages-Under-Spreader.pdf">www.lashingcages.com/downloads/Safety-Cages-Under-Spreader.pdf</a>                                                                                                                                                                                                                                                                                                                                                                                                           | 1-7                                                                            |
| 40 | <input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
| 45 | * Special categories of cited documents:<br>"A" document defining the general state of the art which is not considered to be of particular relevance.<br>"E" earlier document but published on or after the international filing date<br>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)<br>"O" document referring to an oral disclosure use, exhibition, or other means.<br>"P" document published prior to the international filing date but later than the priority date claimed | "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention<br>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone<br>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other documents, such combination being obvious to a person skilled in the art<br>"&" document member of the same patent family |                                                                                |
| 50 | Date of the actual completion of the international search<br><b>29/03/2016</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Date of mailing of the international search report<br><b>(30/03/2016)</b>      |
| 55 | Name and mailing address of the ISA/<br><br><b>OFICINA ESPAÑOLA DE PATENTES Y MARCAS</b><br>Paseo de la Castellana, 75 - 28071 Madrid (España)<br>Facsimile No.: 91 349 53 04                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Authorized officer<br><b>F. Monge Zamorano</b><br><br>Telephone No. 91 3495541 |

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.  
PCT/ES2015/070555

Information on patent family members

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